What is claimed is:

ADD A1

1. An open cable set-top box diagnosing system wherein a cable head end checks an operation state of a set-top box through a point of deployment (POD) by using a diagnosis resource for checking an operation state of the set-top box of a resource layer defined for interface between the point of deployment and the set-top box in an open cable set-top box of which the POD and the set-top box are separated, and the cable head end is connected with a manufacturer of the set-top box by bidirectional network.

2. The system according to claim 1, wherein the cable head end periodically checks the operation state of the set-top through the POD module and informs a corresponding set-top box manufacturer of the diagnosis information on a troubled set-top on a real time basis.

3. The system according to claim 1, wherein the diagnosis resource previously defines objects to be used to exchange diagnosis data between te POD and the set-top box, determines a specific ID information data format to discriminate subscriber set-top boxes, divides the whole system into sub-systems, that is, functional units to be checked and gives each sub-system an ID, and defines the states of each sub-system so that the state information of each sub-system is exchanged between sub-systems as a data of an object.

4. An open cable set-top box diagnosing method comprising:

a step in which when a command for checking the operation state of the

set-top box is inputted from the head end, the point of deployment (POD) requests system state information from the set-top box, and when the system state information is received from the set-top box, the POD transmits it to the head end;

a step in which the head end checks whether there is an error in the set-top box on the basis of the received system state information and requests detailed information on a defective sub-system from the POD in case that there is an error in the set-top box; and

a step in which the POD requests detailed information of the defective sub-system from the set-top box, and when detailed information on the defective sub-system is received from the set-top box, the POD transmits the detailed information to the head end.

5. The method according to claim 1, further comprising a step in which in case that information that there is an error in the set-top box is received, the head end registers the received error information with the subscriber managing server and informs a manufacturer of the corresponding set-top box and its subscriber of the set-top box ID and the trouble through a network on a real time basis.

6. The method according to claim 5, wherein when the cable head end requests various ID information related to the set-top box and information on the sub-system construction from the POD, the POD requests the set-top box to open the diagnosis resource, the set-top box transmits the sub-system construction information of the set-top box by using the pre-set input information to the POD, and the POD transmits the same to the cable head end.

7. An open cable set-top box diagnosing system comprising:

an open cable set-top box for checking its own operation state by using a diagnosis resource by a communication protocol between a point of deployment (POD) separated from the main circuit unit and the main circuit; and

a head end for providing a service corresponding to a request signal received from the open cable set-top box or providing a broadcast program to the open cable set-top box, and checking the operation state of the open cable set-top box.

8. The system according to claim 7, wherein the main circuit unit comprising:

a tuner for tuning a receive frequency to be able to receive a broadcast program corresponding to a frequency of a channel desired by a user from a cable head end;

a demodulator for receiving an broadcast program tuned by the tuner, demodulating it and outputting the demodulated signal to the POD through the IB;

a demultiplexer for processing the signal received from the POD and outputting a data stream;

a decoder for decoding the data stream outputted from the demultiplexer and outputting it to a display and a speaker;

an OOB receiver for receiving the broadcast program information from the tuner through an OOB, processing and outputting it to the POD;

an OOB transmitter for receiving the signal from the POD and outputting it through the OOB to the tuner; and

a CPU for controlling each circuit unit of the main circuit unit.

9. The system according to claim 7, wherein the POD comprising:

a CPU 54 for controlling each circuit unit of the POD;

a conditional access unit for receiving the demodulated signal from the main circuit unit, and descrambling the demodulated signal according to a conditional access key (CAK) outputted from the CPU;

an OOB protocol processor for transmitting and receiving the broadcast program related information to and from the main circuit unit under the control of the CPU; and

a demultiplexer for receiving the demodulated signal and the signal from the OOB protocol processor and demultiplexing them under the control of the CPU.

10. The system according to claim 7, wherein the open cable set-top box includes an interface to connect the main circuit unit and the POD.

11. The system according to claim 7, further comprising subscriber managing servers being connected with the head end, for receiving the operation state of the open cable set-top box transmitted from the head end to manage the open cable set-top boxes.

12. The system according to claim 7, wherein the POD is a PCMCIA card.

13. An open cable set-top box diagnosing method comprising the steps of:

requesting state information on the open cable set-top box according to

the command for checking the operation state of the open cable set-top box received from the head end;

diagnosing whether there is an error in the open cable set-top box on the basis of the state information; and

requesting detailed information on circuit units of a defective open cable set-top box in case that there is an error in the open cable set-top box.

14. The method according to claim 13, wherein, in the step of requesting state information, the head end requests ID information related to the open set-top box and information on the sub-system construction.

15. The method according to claim 13, wherein, in the step of requesting state information, the head end periodically requests state information of the open set-top box.

16. The method according to claim 13, wherein, in the step of requesting detailed information, the detailed information is requested because of an abnormal operation of the open cable set-top box.

17. The method according to claim 13, further comprising a step of informing a manufacturer of the corresponding open set-top box or a subscriber managing server of the detailed information on a real time basis.